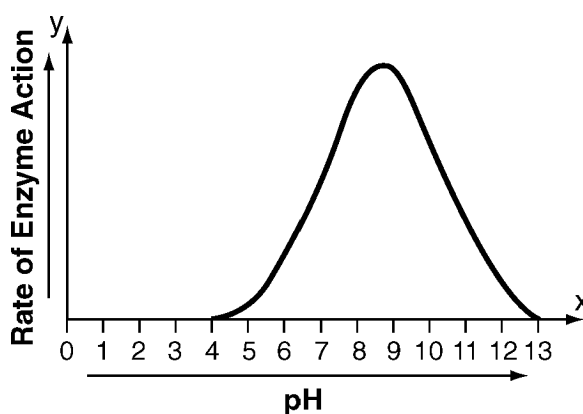


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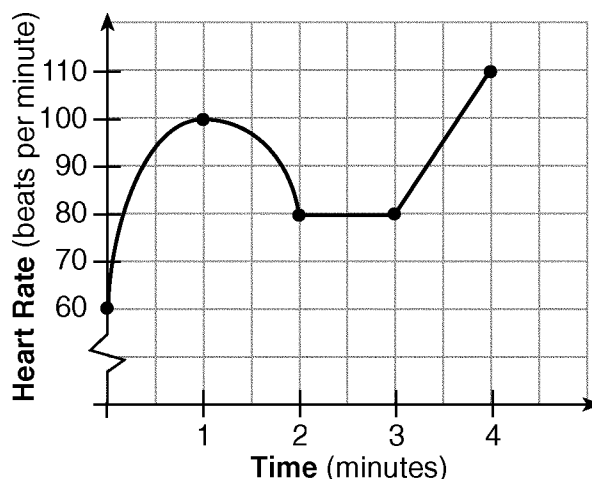
- 1) Set $A = \{(1,2), (2,3), (3,4), (4,5)\}$. If the inverse of the set A is A^{-1} , which statement is true?
- A) A is a function and A^{-1} is not a function.
 B) A is not a function and A^{-1} is a function.
 C) A and A^{-1} are functions.
 D) A and A^{-1} are not functions.
- 2) If $f(x) = 2x + 1$ and $g(x) = \frac{1}{2}(x - 1)$, what does $f(g(-4))$ equal?
- A) -4 B) 1 C) $-\frac{1}{4}$ D) 4
- 3) If $g(x) = x + 3$ and $f(x) = x^2 - 2$, find the value of $g(f(-1))$.
- 4) If $g(x) = x + 3$ and $f(x) = x^2 - 2$, find the value of $f(g(a + 2))$.
- 5) The domain of the equation $y = \frac{1}{(x - 1)^2}$ is *all* real numbers
- A) less than 1 C) except 1 and -1
 B) greater than 1 D) except 1
- 6) What is the domain of $f(x) = \sqrt{x - 6}$?
- A) $\{x | x > 6\}$ B) $\{x | x \geq 6\}$ C) $\{x | x = 6\}$ D) $\{x | x \leq 6\}$
- 7) The effect of pH on the action of a certain enzyme is shown on the accompanying graph.



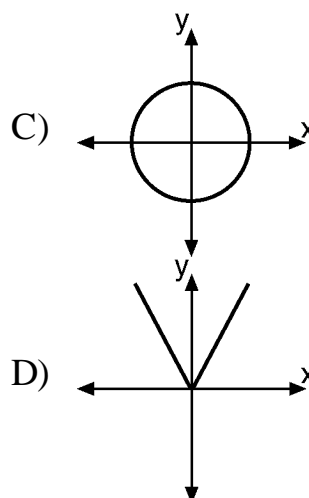
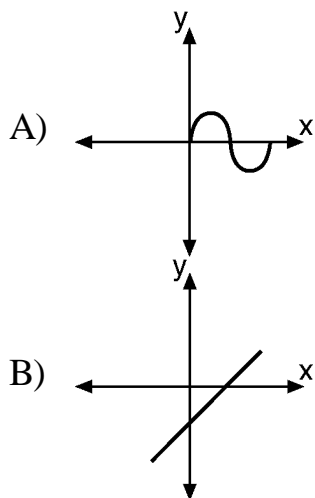
What is the domain of this function?

- A) $\{x | 4 \leq x \leq 13\}$ C) $\{x | 4 \leq y \leq 13\}$
 B) $\{x | x \geq 0\}$ D) $\{y | y \geq 0\}$

- 8) The accompanying graph shows the heart rate, in beats per minute, of a jogger during a 4-minute interval.



- What is the range of the jogger's heart rate during this interval?
- A) 60-110 B) 1-4 C) 0-4 D) 0-110
- 9) Which equation defines a function whose inverse is *not* a function?
- A) $y = -x$ B) $y = 3x + 2$ C) $y = |x|$ D) $y = 2^x$
- 10) If point (a,b) lies on the graph $y = g(x)$, the graph $y = g^{-1}(x)$ must contain point
- A) (b,a) B) $(a,0)$ C) $(0,b)$ D) $(-a,-b)$
- 11) If the function $y = \sqrt{x}$ is replaced by $x = \sqrt{y}$, then the new graph can be described as a reflection of $y = \sqrt{x}$
- A) in the y-axis C) in the line $y = x$
 B) in the line $y = \sqrt{x}$ D) in the line $y = -x$
- 12) If function g is the inverse of function f , then what does $f(g(-5))$ equal?
- A) $\frac{1}{5}$ B) 5 C) $-\frac{1}{5}$ D) -5
- 13) Which of the following graphs has an inverse that is a function?



14) What is the inverse of the equation $y = 3x - 2$?

A) $y = \frac{x+2}{3}$

B) $y = x$

C) $y = 2x - 3$

D) $y = 3x + 2$

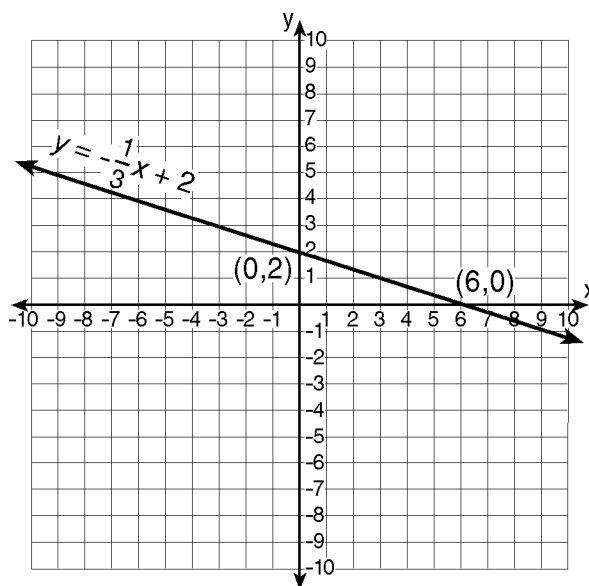
15) For the given relation(s):

(a) State the inverse.

(b) State whether or not the inverse is a function. [*Justify your answer.*]

$$\{(x,y) \mid y = x - 2\}$$

16) The accompanying diagram shows the graph of the line whose equation is $y = -\frac{1}{3}x + 2$.



(a) On the same set of axes, sketch the graph of the inverse of this function. [*Show all work.*]

(b) State the coordinates of a point on the inverse function.

17) The expression $(2y)^{\frac{2}{5}}$ is equivalent to

A) $\sqrt{32y^5}$

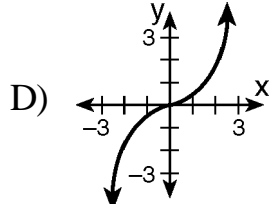
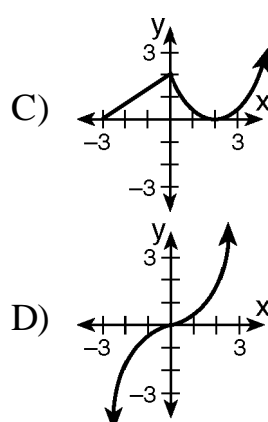
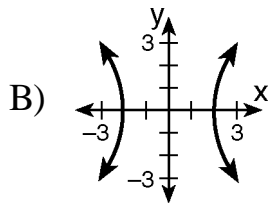
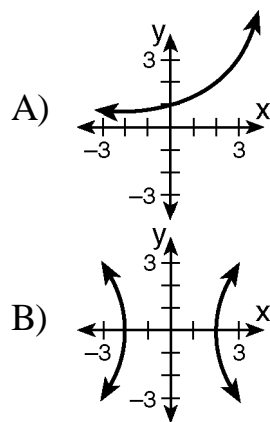
B) $\sqrt[5]{2y^2}$

C) $\sqrt{2y^5}$

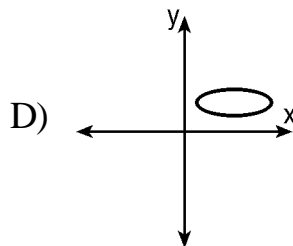
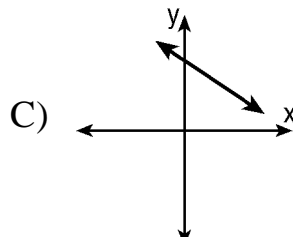
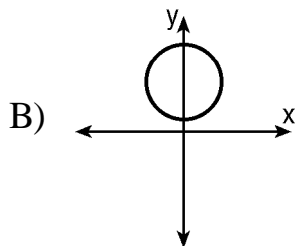
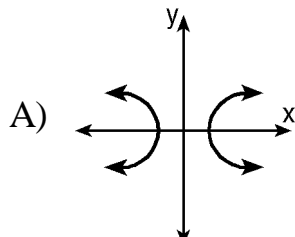
D) $\sqrt[5]{4y^2}$

- 18) Which equation is equivalent to $y = 10^x$?
- A) $y = (\frac{1}{10})^x$ B) $y = 10^{-x}$ C) $y = (\frac{1}{10})^{-x}$ D) $y = -10^{-x}$
- 19) The expression $(a^2)^3$ is equivalent to
- A) $2a^5$ B) a^6 C) $3a^2$ D) a^5
- 20) The expression $(-3x^2y^3)^3$ is equivalent to
- A) $-27x^5y^6$ B) $-9x^6y^9$ C) $-27x^6y^9$ D) $-3x^5y^6$
- 21) When $3x^2$ is multiplied by $6x^4$, the product is
- A) $2x^2$ B) $18x^8$ C) $9x^6$ D) $18x^6$
- 22) Simplify: $(5y)^0$
- 23) Simplify and express with positive exponents: $(-3x)^{-2}$
- 24) Express with rational exponents: $\sqrt[3]{9}$
- 25) Express in radical form: $(2y)^{\frac{2}{3}}$
- 26) Solve: $y^{\frac{2}{3}} = 64$
- A) ± 512 B) ± 16 C) 16 D) 512
- 27) Solve: $(c-1)^{\frac{2}{3}} = 25$
- A) 126 and -124 C) 126
B) -124 D) -126 and 124
- 28) Solve: $4x^{\frac{1}{5}} + 2 = 10$
- 29) Which one of the following sets is *not* a function?
- A) $\{(1,1), (1,2), (1,3)\}$ C) $\{(1,1), (2,2), (3,3)\}$
B) $\{(1,1), (2,1), (3,1)\}$ D) $\{(1,2), (2,3), (3,4)\}$

30) Which graph does *not* represent a function?



31) Which graph of a relation is also a function?



32) If $f(x) = 4x^0 + (4x)^{-1}$, what is the value of $f(4)$?

A) $1\frac{1}{16}$

B) $4\frac{1}{16}$

C) -12

D) 0

33) If $f(x) = |x^3 - 3|$, then $f(-1)$ is equal to

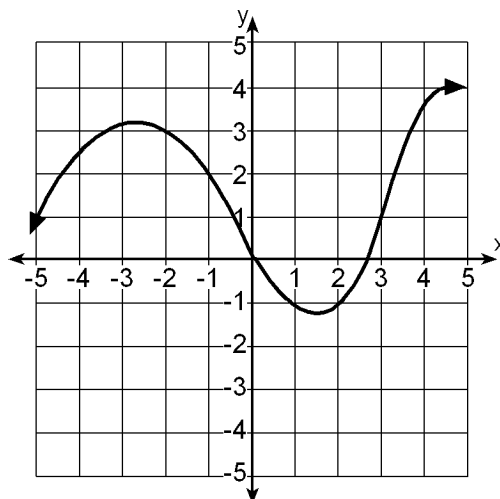
A) 0

B) 2

C) -2

D) 4

34) Given the graph below of $y = f(x)$.



According to the graph shown, what is the value of $f(-2)$?

- A) 1 B) -1 C) 3 D) -2

35) Given the function $f(x) = 2x + 5$, find the value of $f(a + 1)$.